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REMARKS/ARGUMENTS

Specification

The abstract of this application has been amended to limit the number of words to within the range between 50 and 150.

Claim Rejections – 35 USC § 103

The number of claims in this application was 11 and as a result of this amendment, 11 claims remain in the application.

The Examiner has rejected claims 1-11 under 35 USC § 103(a) as being unpatentable over Gliebe (US 5,478,199) in view of Motsinger et al. (US 3,693,749).

The Examiner has alleged that Gliebe teaches all features in claim 1 but does not clearly teach the exciting sound wave having a primary frequency generally different from a frequency of the primary tone of the noise which , however, is taught by Motsinger et al..

As stated in Applicant's Remarks/Arguments submitted on March 25, 2004, in Gliebe's active noise attenuation technology, the anti-noise principle is to provide an anti noise signal which has a frequency and amplitude exactly equal but having opposite phase with respect to the unwanted target noise sound wave, in order to substantially destroy the unwanted noise sound wave, rather than a process of re-distributing the tonal energy to side bands, as in the claimed invention. Gliebe clearly describes the principle on which his invention is based in column 6, lines 9-24 of his patent. Although the Examiner has stipulated that Gliebe does not clearly discuss the frequency of the anti-noise signal, people skilled in the art would understand that the same frequency of the two sound waves are obvious when the 180 degree out-of-phase of the two sound waves are discussed. Sound waves which do not have an identical frequency cannot be compared in phases, and it would make no sense to discuss opposite phases of sound waves having different frequencies.

Motsinger et al. do teach an exciting sound wave having a primary frequency generally different from a frequency of the primary tone of the noise. However, for the same reason as set forth above, Motsinger et al.'s teaching cannot be used to modify

Gleibe's technology because an exciting sound wave having a frequency generally different from the frequency of the primary tone of the noise as taught by Motsinger er al., would not meet Gleibe's requirement of opposite phases of the sound waves, and would therefore cause a failure of Gliebe's noise suppression. Therefore, the Examiner's rejection of claim 1 is traversed.

For the same reason discussed above with reference to claim 1, the Examiner's rejection of claims 4 and 7 is traversed.

Furthermore, the Examiner has misinterpreted the entire text from Gliebe's column 5, line 15 to column 6, line 67 and has thus stated that Gliebe teaches sound energy of noise redistribution from the frequency of the primary tone to a broad range of side bands. In fact, Gliebe's text generally describes the spinning mode generation and the principle of active noise attenuation, which has nothing to do with sound energy redistribution.

Claims 2, 3, 5, 6 and 8-11 depend directly or indirectly from the respective allowable independent claims (claims 1, 4 and 7), and are therefore also allowable.

Applicant asserts that the Examiner has mistakenly or improperly interpreted the stator vane or OGV 30 of Gliebe's Fig. 1 as an exciting sound wave generator. As a matter of fact, Gliebe's stator vane or OGV 30 is part of the engine design for de-swirling and not for noise reduction, and as such is actually part of the noise source.

Nevertheless, independent claims 1, 4 and 7 have been amended to limit the frequency of the exciting sound wave to an audible range in order to patentably distinguish the claimed invention over Motsinger et al.

Motsinger et al. teach reduction of turbine noise by modulation, and more particularly by the use of an ultrasonic siren or an air whistle to generate an ultrasonic auxiliary sound wave for redistributing the sound energy from a primary tone of the noise to side bands thereof. Motsinger et al. in column 5, lines 59-62 state that **"In all of the cases described above, the frequency for the auxiliary sound source should be above the audible range since, otherwise, the different tone may still be in the audible range."**

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However, the present invention is not intended to change the primary tone of the noise to a "different tone" which is above the audible range. See, for example, the description page 6, first full paragraph of this application. Therefore, the frequency of the exciting sound wave is chosen from within an audible range for simplifying the exciting sound wave generation.

The audible range of the exciting sound wave is supported in the description. On page 13, last paragraph, the exciting sound wave is described as an acoustic tone 46. In accordance with the definition 1 of "acoustic" in Webster's College Dictionary (Random House, New York), "acoustic" is "pertaining to the sense or organs of hearing,...".

No new subject matter has been added.

It is believed that this application is now in condition for immediate allowance. Favourable consideration and early issuance of the Notice of Allowance are respectfully solicited.

Respectfully submitted,
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